in various colours, and the initial letters are very large (Pls. 34, 38).

A fine example of the writing and illumination of the thirteenth century is that given on Pl. 1, from a Coptic and Arabic Evangelarium written A.D. 1250; in it St. Mark, seated, is about to receive in a napkin the book of the Gospels from St. Peter, and by his side is a stand in the shape of that used to hold a Koran; opposite is a scene in which John the Baptist is baptizing Christ in the Jordan, in the presence of two angels, who hold napkins, and above them is descending from blue heavens the Holy Ghost in the form of a dove. Behind John the Baptist is a tree, in the trunk of which an axe has been struck. Of illustrated Gospels of this period we have excellent specimens on Pls. 44–47, where the Transfiguration, the devils entering the swine, the Marriage at Cana, the Last Supper, the Crucifixion, &c., display a quaint mixture of ancient Coptic, Byzantine, and Arab methods of illumination and ornamentation. Of manuscripts of the thirteenth and fourteenth centuries good examples are given on Pls. 50 foll., with *facsimiles* of the elaborate crosses of the period and of the portraits of the four Evangelists in circles. The space at our disposal will not allow a more detailed description of the contents of the "Album de Paléographie Copte" than that given above, which will serve to indicate the great value of the work to scholars.

The Copts, or "Egyptian" Christians, played no unimportant part in the history of Egypt after the preaching of St. Mark at Alexandria, A.D. 64; and from that time until the present day they have steadily and consistently maintained their religious opinions without change. They clung fast to their language, in spite of the widespread use of Greek in Egypt in the earlier centuries of this era; and although they adopted the Greek alphabet, with the addition of some few signs from the demotic, and borrowed largely from the Greek vocabulary, they did not cease to write their books in Coptic nor to celebrate the services of their Church in that language. After the conquest of Egypt by the Arabs, the Copts held positions of dignity and importance there for some hundreds of years; but about the twelfth century they seem to have fallen into poverty and contempt, and about a century later it seems that they ceased to produce literary works; moreover, the growing custom of adding Arabic translations by the side of the Coptic texts proves that the knowledge of Coptic was dying out. During the next few centuries it probably became the study of the learned. In the course of the last two centuries, travellers in the East have brought to Europe numbers of Coptic manuscripts, and among those deserving special mention are Pietro della Valle, and Huntingdon, Assemani, Curzon, and Tattam. The revival of Coptic learning was begun by Abela, a Maltese; and his work was carried on by Kircher, Petræus, Jablonski, Renaudot, Wilkins, Vansleb, Lacroze, Tuki, George, Zoega, Quatremère, Tattam, and Peyron: among those who have done much excellent work in Coptic during the present century are Schwartze, Lagarde, Revillout, and Rückert. The recent works of Amélineau and Hyvernat show that serious attention is now being paid to the Coptic language for philological and ecclesiastical purposes, and that the publication of new material is going on rapidly.

In conclusion, all lovers of Coptic literature owe a debt of gratitude to M. Henri Hignard, formerly President of the Académie de Lyon, for his liberality in undertaking the expense of publishing this work, and to M. Hyvernat for the excellent way in which he has made use of the funds so generously placed at his disposal.

BRITISH MUSEUM (NATURAL HISTORY) CATALOGUES.

Systematic List of the Frederick E. Edwards Collection of British Oligocene and Eocene Mollusca in the British Museum (Natural History); with References to the Type Specimens from similar Horizons contained in other Collections belonging to the Geological Department of the Museum. By Richard Bullen Newton, F.G.S. Pp. xxviii. and 365, with a large Folding Table. (London: Printed by order of the Trustees. Sold by Longmans and Co.; Quaritch; Dulau and Co.; Kegan Paul, Trench, Trübner, and Co.; and at the Natural History Museum. 1891.)

THE interest which attaches to the records of past periods of our earth's history is greatly enhanced when we find them in the strata forming the very ground beneath our feet. Such is the explanation of the origin of the well-known Edwards Collection of Eocene Mollusca, which forms the subject of the volume before us. Mr. Frederick Edwards resided at Hampstead some fifty years ago, at a time when the Primrose Hill tunnel of the London and North-Western Railway was formed, and the Archway Road, Highgate, had lately been cut, and, later still, the Great Northern tunnel under Copenhagen Fields. These, and many brick-field excavations in the north of London, led to the discovery of abundant fossil-remains around his residence, and attracted the attention not only of Mr. Edwards, but of Dr. Bowerbank, Mr. Wetherell, Prof. John Morris, Mr. Searles V. Wood and his son, Mr. Sowerby, Mr. White, Mr. Page, and other geologists living in Highbury, Highgate, Hampstead, and Kentish Town, who formed among themselves a small Naturalists' Society, known as the "London Clay Club," the members of which met periodically at each other's houses, to compare and exchange specimens, and to name the fossils they had discovered in the London clay. Mr. Wetherell, Dr. Bowerbank, and Mr. Frederick Edwards made most extensive collections; but, whilst Wetherell and Bowerbank collected from the London Clay, the Chalk, and other formations, Mr. Frederick Edwards devoted all his attention to the Mollusca of the London Clay and other Tertiary beds of the south-east of England. All his summer holidays were spent in such spots as the New Forest (where, at Brockenhurst, Bramshaw, Lyndhurst, and many other spots, assisted by Mr. Henry Keeping, he opened numerous trial-pits), or at Barton and Hordwell on the coast of Hampshire, Colwell Bay, Headon Hill, Osborne, Hempsted, Bembridge in the Isle of Wight, and Bracklesham Bay, Sussex. He collected at all these places, and *carefully recorded* the localities from whence his specimens were derived. With infinite care he mounted and named these delicate Tertiary shells, and the beautiful specimens so prepared have been preserved in their entirety in the National Museum.

After the formation of the Palæontographical Society, a large number of Mr. Edwards's Mollusca were monographed by him from 1849 to 1860 (five parts), and continued by S. V. Wood, 1861 to 1877 (four parts); and papers were published in the *London Geological Journal*, the *Geologist*, the *Geological Magazine*, and the Quarterly Journal of the Geological Society of London.

The unpublished labour which Mr. Edwards expended on his cabinets greatly exceeded that which he devoted to the publication of a part of their contents, as may readily be seen by a study of his collection; and when it is known that this work was all performed in the leisure hours of a busy life as a Master-in-Chancery, hearing and deciding law cases in Chambers all day, one is astonished to find how much he was able to accomplish.

The collection contains no fewer than 39,191 specimens, referred to 1805 species of Mollusca, divided into the following classes:—

85	genera and	648	species of	Lamellibranchiata,
162	,,	1127	,,	Gasteropoda,
2	,,	14	,,	Scaphopoda,
6	,,	16	,,	Cephalopoda.
		1805		

Of this number 585 are manuscript species, proposed by F. E. Edwards, which have not yet been described; so that nearly one-third has to be deducted from the above total if we would arrive at the actual number of species already figured and described.

It may be objected that these manuscript names ought not to have been printed; but Mr. Newton points out, in the preface to his catalogue, that these have got into circulation abroad in lists published by German and French palæontologists, with whom Mr. Edwards had corresponded, until, like some paper-currencies, they have obtained for themselves an artificial value, and it would be inconvenient to omit to mention them in a list of Mr. Edwards's own collection. Mr. Newton, moreover, promises shortly to describe and figure them, thus giving them their full *specie-value*, a promise which we sincerely trust he will find leisure to perform.

In addition to the specimens in F. E. Edwards's own collection, figured and described by himself and others, all those in the Brander, Sowerby, Dixon, Bowerbank, and Wetherell collections are duly recorded; so that much valuable information as to the whereabouts of these types, and references to the works in which they are recorded, has been carefully brought together in this volume by Mr. Newton.

Apart from the vast variety, as well as the rare beauty of form, by which the Mollusca of the Eocene period at once arrest the attention of even the most unlearned, to the student of palæontology they afford unmistakable evidence of the existence in this earliest Tertiary period of subtropical marine conditions over this portion of the earth's surface, which now forms South-eastern England. Several extinct forms of Nautilus and Cuttlefishes, associated with huge species of *Cerithium*, Cowries, Cones, Volutes, and such genera as *Rostellaria*, *Mitra*, *Marginella*, *Cancellaria*, *Oliva*, *Ovula*, and *Seraphs*, with *Terebra*, *Pirenia*, *Phorus*, *Solarium*, *Nerita*, and *Chiton*, make up a rich display of Mollusca belonging to the warmer seas of the globe, and if we add such genera as *Pholadomya*, *Spondylus*, *Crassatella*, and many of the other bivalves, they tell the same tale. Crustacea, Echinodermata, and Corals were also present, together with numerous Turtles, whilst along the shores of the rivers huge Crocodiles patiently awaited the *Palæotheria* and *Anoplotheria* from the neighbouring lands. Terrestrial vegetation, washed down from the Eocene continent, also proves to be of a tropical kind —Palms, Cacti, Dryandra, Maple, Azalea, Acacias, with others, belonging to more temperate latitudes, forming a part of the vegetation of our island to-day. Nor were the terrestrial Mollusca unaffected by the increased temperature, for we find large *Bulimi* and *Helices* unlike those now living in this country, whilst the species of *Limnea* and *Planorbis* were both large and very abundant, and were associated with *Potamides*, *Melania*, and other exotic genera in its streams. That there must have been at that time a close connection between our English Eocene area and the much larger Eocene area of France, cannot be doubted, for the beds of the Paris basin and those of Hampshire and London are capable of close correlation, and many genera and species are common to both areas.

Mr. Newton has fortunately obtained the co-operation of Mr. George F. Harris, who has, in an appendix, added some valuable tables, showing the probable equivalent horizons of our several English Tertiary beds with those on the Continent, in France, Belgium, and Germany, and as far east as Austria and Italy, and southwards to Spain. These tables will prove of the greatest value to the student who seeks to understand, and even to map out, the former geographical extent of the several successive Tertiary deposits of Europe, with their varied land, freshwater, and marine records of past life, both animal and vegetable.

Most of the points dealt with by Mr. Newton in the introduction to his list have reference to questions of priority in names, and explanatory notes in justification of some which have been abolished—either because the name had been pre-occupied for a genus of fishes, or birds, or reptiles, &c., or because it had been discovered that another author had previously described the same shell, and had at an earlier date given it another name. Many old favourites have thus been relegated to obscurity, whilst fresh names, dug up from some forgotten corner, have, by the law of priority, taken their places. Thus:—*Meretrix*, Lamarck, 1799, takes the place of his better known *Cytherea* of 1806, the latter having been applied by Fabricius, in 1805, to a dipterous insect. *Triton*, De Montfort, 1810, gives place to *Lampusia*, Schumacher, 1817, "having been applied by Linnæus to a Cirripede in 1767." But as no genus of Cirripedes is known by that name at present, this is a needless and undesirable alteration, especially as Mr. Newton remarks, "the genus *Triton* still continues a favourite name among conchologists"; we would add, "long may it continue" so. Darwin says: "I cannot doubt that the *Triton* described by Linnæus was only the *exuviæ* of some *Balanus* (probably *B. porcatus*), Linnæus mistaking the proboscidiformed penis for the mouth of his imagined distinct animal" (Darwin's *Balanidæ*, Ray Soc., 1854, p. 158).

It would be an immense gain if every name proposed to be altered had to pass through a regularly-constituted committee of investigation before it was accepted and allowed to pass current; as it is, endless confusion must arise, and needless alterations will for ever be made, serving no good end to science.

Mr. R. B. Newton's systematic list of the Eocene and Oligocene Mollusca of our British strata will prove extremely valuable to all those who take an interest in our Tertiary deposits and their contained organisms. Every curator of a palæontological collection must have it, as a work of reference, by his side, as, for this section of fossils, it takes the place of "Morris's Catalogue," now long out of date. We shall be very glad to see other sections treated in a similar manner—indeed, Messrs. A. Smith Woodward and C. D. Sherborn have already catalogued the fossil Vertebrata of the British Isles in 1890, and the work has been published by Dulau and Co.

THE LIFE AND WORK OF A NORFOLK GEOLOGIST.

Memorials of John Gunn: being some Account of the Cromer Forest Bed and its Fossil Mammalia. Edited by H. B. Woodward and E. T. Newton. Pp. xii, 120; 13 Plates (Portrait and Fossil Mammalia). (Norwich: W. A. Nudd, 1891.)

ALL students of the geology of the eastern and central parts of Norfolk and Suffolk will welcome this book, as giving the well-matured opinions of a geologist whose life-work was chiefly concerned with the Forest Bed and its associated formations, Crag and Drift. Those too who knew Mr. Gunn must be glad to have this memorial of so courteous, kindly, truth-seeking a man. No one enjoyed his friendship but was the better for it, and the writer looks back on days spent in his company, both in the field and at meetings of the Norwich Geological Society, as amongst the happiest events of a long sojourn in the Eastern Counties. Until reading this book he did not know the politics of Mr. Gunn, and he is glad to find another of many instances in which such matters are kept in the background, as regards scientific intercourse and personal friendship.

To those who, like the writer, are not greatly enamoured with biography and its multiplicity of personal details it is satisfactory to find this part of the book artistically treated, by Mr. Woodward, in only 27 pages, which are full of interest. The best memorial of a scientific man is the work that he has done and by which he will be known in the time to come, and it is to Mr. Gunn's work that the editors chiefly direct our attention. After the memoir and about 13 pages of notes on some of his geologic papers, the book takes the form of a short essay on the Cromer Forest Bed and its fossil Mammalia, by the hand of Mr. Gunn himself; that is to say, from notes practically completed by him shortly before his death.

For the task of bringing these matters before the public no better editors could have been chosen. One of them, who, in his Geological Survey work, was brought much in contact with Mr. Gunn, may be called the hereditary geologist of Norfolk. The other has for some years given great attention to the study of the fossil Mammalia of the Forest Bed, and indeed has made himself the chief authority on the subject.

In 1864, Mr. Gunn helped to found the Norwich Geological Society, of which he was the first and the last President, retiring from that post only for six years (1877–83) in order that it should be filled by officers of the Geological Survey who were stationed in Norfolk and Suffolk: a graceful compliment. He was also one of the founders of the Norfolk Archæological Society, an active member of the Norwich Science Gossip Club, and a member of the Norwich Museum, which he enriched by his fine collection of fossil mammals.

Now that coal has been found underground at Dover, and that there may be some chance of a search for it being made in the Eastern Counties, it should be remembered that Mr. Gunn was the first to advocate trial-work in Norfolk.

On the ground that "unanimity does not prevail in regard to the nomenclature of the strata" of the Norfolk cliffs, Mr. Woodward gives a useful table, on p. 40, showing the classifications of Gunn, of Prestwich, and of C. Reid; but that of Wood might have been added with advantage; and he draws attention to the fact that the cliffs are cut back greatly year by year, so that earlier observers may have seen something different from later ones. As the loss of coast is still going on, and the Forest Bed seems not to reach far inland, a happy time may come when that Series will cease to furnish any ground for contention: in this matter the geologists of the future may have to take the work of their foregoers, without the luxury of upsetting it.

In his account of the Forest Bed Series, Mr. Gunn holds to the view that, as a rule, the trees grew on the spots where the stumps are now found. He describes firstly the Estuarine Soil, then the Forest Bed proper, then the Reconstructed Forest Bed (a division not hitherto recognized, and hardly likely to be, reconstruction seeming to occur in various parts of the Series), and lastly the Unio and Rootlet Bed; but it should be noted that other observers take the Forest Bed and the Rootlet Bed to be one. His use of the term Laminated Beds, for the immediate successor of the Forest Bed Series, is unfortunate, as such names usually are, for lamination is common in the Chillesford Clay below and in some of the Glacial Drift above.

Mr. Gunn's notes conclude with remarks, in some detail, on the Proboscidea of the Norwich Crag and of the Forest Bed Series, and on the Cervidæ of the latter, chiefly based, with the plates, on the specimens which he so liberally gave to the Norwich Museum. The notes are followed by a list of his geological and archæological papers, ranging over forty-eight years, from 1840 to 1887.

The plates of Mammalian fossils are well executed; but it is a pity that those of Proboscidea and those of Cervidæ are not numbered consecutively, instead of independently. The portrait that forms the frontispiece is a good one, and the book is well printed.

Few geologists can expect their names to be handed down to posterity by so fine a set of specimens as those of the Gunn Collection in the Norwich Museum, and by so interesting a literary accompaniment as that now noticed.

W. W.